



Differential Pressure Transmitter HPT 500

IO-Link interface

Differential pressure

Accuracy 3%

High pressure



Features

- Ideally suited for monitoring the contamination degree of a filter element in pressure filters.
- IO-Link communication
- Point-to-point connection
- Configurable
- Continuous monitoring
- Device Temperature

Description

HPT 500 with IO-Link interface was specially developed to provide an inexpensive solution for the measurement of differential pressure. A piston movement inside of the device is evaluated by means of a Hall sensor, which enables to determine the occurring differential pressure. The particularity about this measuring principle is that even with high pressures, e.g. in a 350 bar system, high-precision measurement of very low differential pressures (i.e. <2 bar) is possible.

IO-Link is the communication between the sensor / actuator (IO-Link device) and an IO-Link master based on a point-to-point interface.




Process data, parameters and diagnostic information of the differential pressure sensor can be transmitted via a standard M12 cable.

In addition to the cyclic transmission of the current differential pressure the sensor provides the internal device temperature on a non-cyclical basis as an ISDU (Indexed Service Data Unit). On the one hand, this represents an indirect measurand for the fluid temperature, and on the other hand, it is also an indicator for the device integrity (diagnosis).

Fields of application

HPT 500 is ideally suited for integration in Condition Monitoring systems. This enables a continuous report on the filter element's contamination degree via intelligent monitoring of the pressure drop across the filter element. Consequently, the filter element change can be planned in dependence of its condition and also events of sudden dirt ingress into the system, i.e. due to mechanical defect, can be recognised.

Technical details

Input data		
Measuring ranges	Differential pressure 2; 5; 8 bar	
Pressure resistance	420 bar	
Overload pressure	600 bar	
Burst pressure	1600 bar	
Mechanical connection	G ½ HN 28-22	
Tightening torque, recommended	100 Nm	
Parts in contact with fluid ¹⁾	Connector:	Housing: Stainless steel Piston: aluminium
	Seals:	O-Ring: Standard FKM Profile seal ring: PTFE
Fluid compatibility	Hydraulic oils: H, HL, HLP, HVLP, HLPD acc. to DIN 51524 Biodegradable operating fluids to VDMA 24568 (HETG, HEES, HEPG)	
Viscosity range	max. 250 cSt	
Output data		
Output signal	IO-Link interface	
Accuracy acc. to DIN 16086 ²⁾	≤ ± 3 % FS typ.	
Terminal based	≤ ± 5 % FS max. (ref. to Δ p)	
Temperature compensation	≤ ± 0.05 % FS max. / year ≤ ± 0.05 % FS max. span	
Long-term drift	≤ ± 0.5 % FS typ. / year	
Environmental conditions / Approvals / Tests		
Compensated temperature range	+20 +70 °C	
Operating temperature range	-20 .. +85 °C	
Storage temperature range	-40 .. +100 °C	
Fluid temperature range	-20 .. +85 °C	
EMC	EN 61000-6-1 / -2 / -3 / -4	
  conformity	Provided	
 approval ³⁾	Provided	
Vibration resistance acc. to DIN EN 60068-2-6 at 10 .. 500 Hz	~ 20 g	
Shock resistance acc. to DIN EN 60068-2-27 (1 ms)	~ 50 g	
Protection class acc. to DIN EN 60529 ⁴⁾	IP 67 (plug M12x1)	
IO-Link specific data		
IO-Link revision	V1.1	
Transmission Rate, Baud rate	38.4 kbit/s (COM2)	
Minimum Cycle Time	2.5 ms	
Process data width	16 bit	
SIO Mode Supported	Yes	
Sensor profile	GPS	
M-sequence capability	PREOPERATE = TYPE_1 V (8 Byte) OPERATE = TYPE_2_2 ISDU supported	
Download the IO Device Description (IODD) from:	https://ioddfinder.io-link.com/#/	
Other data		
Supply voltage	9 .. 35 V DC (18 .. 30 V DC for communication operation)	
When applied acc. to UL specifications	- limited energy – acc. to 9.3 UL 61010 Class 2; UL 1310/1585; LPS UL 60950	
Residual ripple of supply voltage	≤ 5 %	
Current consumption	≤ 25 mA	
Life expectancy	> 1 million cycles (max. diff. pressure resistance)	
Weight	~ 170 g (stainless steel)	

Note: Reverse polarity protection of the supply voltage, overvoltage, override and short circuit protection are provided.

FS (Full Scale) = relative to complete measuring range

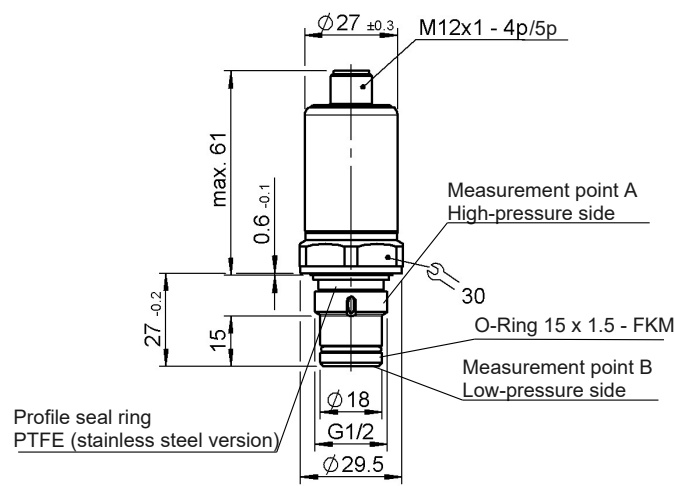
¹⁾ Other seal materials on request

²⁾ The accuracy is valid if the transmitter is installed inside of a steel or a stainless steel block.

³⁾ Environmental conditions acc. to 1.4.2 UL 61010-1; C22.2 no. 61010-1

⁴⁾ With mounted mating connector in corresponding protection type

Dimensions

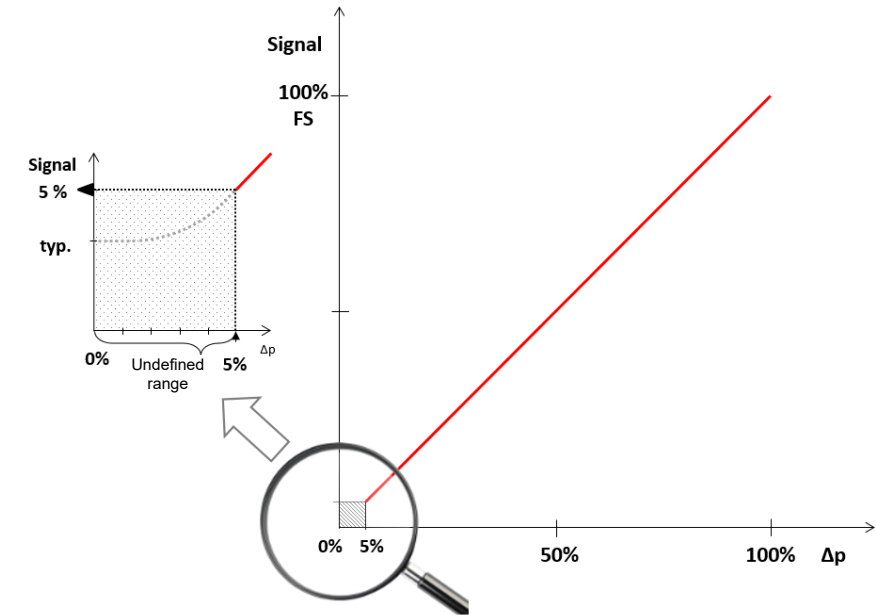


Pin connections

M12x1, 4 pole	Pin	Output signal: F31	
		Signal	Description
	1	L+	+U _B
	2		n.c.
	3	L-	0V
	4	Q1/C	Switching output (SP1) / IO-Link communication

Notice

Due to the measuring method, the range between 0 % and 5 % of the differential pressure measuring range is not defined. This means, a numerical value > 0 might be displayed even if there is no difference in pressure. The output value will not correspond with the existing pressure conditions until the pressure difference is >= 5 %.



Model code

HPT 5 0 6 - F31- XXXX - S - 000

Electrical connection

6 = Plug connector M12x1, 4 pole

Output signal

F31 = IO-Link interface

Pressure range in bar

02.0; 05.0; 08.0

Pressure range in bar

S = Stainless steel

Modification number

000 = Standard

Note

The information in this brochure relates to the operating conditions and applications described.
For applications and operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

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